BONNEVILLE
POWER ADMINISTRATION

Transmission Business Line (TBL)

Business Practice

Operating Reserves - Spinning And Supplemental Services, Revision 2

For the OATT effective October 1, 2001

Posted September 22, 2003

This revision includes the following changes:

(1) revised section B.1 to enable BPAT to make continual reviews of the Transmission Customer's ability to supply reserves based on changing conditions to BPAT's system or Transmission Customer's ability to meet the criteria;

(2) revised section B.3.e thru g to change the party responsible for contingency energy per the 2004 rate case;

(3) revised section C.5 to incorporate additional criteria enabling BPAT to review the 150 MW floor criteria throughout the FY;

(4) revised section C.9(3) to incorporate additional scenario for when a strike would apply;

(5) revised C.10 to clarify the "one Control Area" concept;

(6) added subsections 15 thru 21 to section C to address requirement of the availability of Operating Reserves when called on (subsection 15), the right to test Supplier's response to a BPAT signal at any time (subsection 16), additional penalties (subsections 17 - 18), availability of transmission to deliver reserves (subsection 19), additional criteria for Transmission Customers who request to acquire third party reserves from a Supplier other than BPAT (subsection 20), and BPAT's right to assess the accuracy of the Transmission Customer's transmission schedules or Net Load Forecasts and apply strikes (subsection 21);

(7) replaced Appendix A "Example" with "Process Behavior Charts";

(8) replaced Transmission Customers, Third Party Provider, Provider, and Self-Supply in sections C thru H with Supplier where applicable;

(9) replaced Basepoints with Generation Estimates, and Supplier Control Error with Supplier Recovery Error;

(10) added 2 definitions for Generation Estimates and Supplier; and

(11) deleted Sections F, G, and H because of redundancy.

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A. Introduction

Transmission Customers may purchase Operating Reserves - Spinning and Supplemental, to cover their Operating Reserve Requirement from BPAT pursuant to its Open Access Transmission Tariff (Tariff). The applicable rates for this service can be found in BPAT's Transmission and Ancillary Services Rate Schedules, Ancillary and Control Services (ACS Rate Schedule). This Operating Reserves - Spinning and Supplemental Services business practice applies to either Ancillary Services or Control Area Services whereby the Transmission Customers serving load within or outside the BPAT Control Area from generation resources located within BPAT's metered Control Area are required to obtain such service.

1. BPAT is obligated by the Western Electric Coordinating Council's (WECC) Minimum Operating Reliability Criteria (MORC) to carry reserves for contingencies within its Control Area boundaries. These reserves provide for replacement of capacity and energy needed to serve Control Area Load Responsibility in the event of a forced outage. This allows transmission schedules to continue for the Scheduling Hour. The Control Area reserve requirement is dependent upon the Load Responsibility served by the Control Area.

2. For BPAT purposes, Load Responsibility includes all loads within the BPAT Control Area plus all interchange exports from the BPAT Control Area minus all interchange imports into the BPAT Control Area. All interruptible imports, exports or loads must be designated by contractual agreement with BPAT before it can be excluded from Load Responsibility.

3. Generators operating in the BPAT Control Area that provide power through an interconnected system without a BPAT transmission agreement must obtain the Control Area Services of Operating Reserves - Spinning and Supplemental Services and supply BPAT with a Generation Estimate schedule during the pre-schedule time window. Real-time changes should be made during the real-time scheduling window.

4. Transmission Customers must make arrangements for the provision of Operating Reserves Services to support their transmission transactions. Generators pay for Control Area Services of Operating Reserves - Spinning and Supplemental Services, when the reserve services are not otherwise provided.

5. Unless otherwise defined herein, capitalized terms are defined in BPAT's Tariff or in WECC Policies, Standards or Criteria at WECC's website, http://www.WECC.biz. See section F of this business practice for additional definitions.

6. If the Transmission Customer chooses to supply Operating Reserves Services, the resource(s) supplying such services must respond to automated signals sent from BPAT's control center calling upon those resources, and an observable response must occur, according to the technical requirements described in this business practice.

a. Self-supply means the Transmission Customer, who provides its total Operating Reserve Requirement. Total Operating Reserve Requirement refers to a Transmission Customer's Operating Reserve Requirement for all of its agreements with BPAT.

b. A third party supplieris a resource operator who agrees to supply to BPAT a Transmission Customer's total Operating Reserve Requirement for all of that Transmission Customer's agreements with BPAT. A third party supplier may provide this service to more than one Transmission Customer. Such Supplier must provide the aggregate total requirement of all its customers for every hour of the year.

7. Plant operators with generation operating in the BPAT Control Area must notify BPAT's generation dispatcher of any contingency due to equipment problems that results in partial or total reduction of the generator's scheduled energy delivery for the hour, within four minutes of the occurrence of the contingency event. The notification provisions coincide with the Northwest Power Pool (NWPP) Reserve Sharing Procedures (RSP). The plant operator shall provide the following minimum information to the BPAT generation dispatcher:

- The name of the plant
- What resource(s) suffering a contingency, unit number or name
- The time of the contingency
- The reason for the contingency
- The amount of reserves required (in MW) reflecting the actual amount of generation lost. See Appendix B to determine the amount of generation lost.
- How long the reserves are required (up to the remainder of the Scheduling Hour)
- Other information as may be requested by the BPAT generation dispatcher

Prior approval for alternative methods of notification, other than by plant operators, may be granted by the BPAT generation dispatcher only after a site visit. If an alternative is approved, BPAT may revoke method of notification if the BPAT generation dispatcher is unable to perform its reliability duties.

8. The consequence of not reporting a contingency by the required time, as stated in section 7 above, is that the contingency energy may not be delivered at the dispatcher's discretion. Instead, Generation Imbalance charges will apply. If a generator is not subject to Generation Imbalance charges (see BPAT's Generation Imbalance business practice), then Energy Imbalance charges (see BPAT's Energy Imbalance business practice) may apply.

B. Operating Reserve - Spinning and Supplemental Services

1. A Transmission Customer's Operating Reserve Requirement for Spinning and Supplemental Services for all of its agreements with BPAT must be met by one of the following three alternatives: 1) purchase from BPAT; 2) self-supply; or 3) third party supply. The entire reserve requirement for both Operating Reserve - Spinning and Supplemental Services must be supplied by one of the supply

options. A Transmission Customer must have the same Supplier for all agreements it may have with BPAT. Selection of an Operating Reserves Supplier is described below.

a. At the time a Transmission Customer makes its initial request for transmission service with BPAT, it must indicate its provider for Operating Reserves Services. BPAT is the default provider under the following circumstances: 1) no election was made by the Transmission Customer; 2) the designated Supplier fails to perform to its obligation, 3) the supply arrangements the Transmission Customer has made are not comparable to purchasing Operating Reserve Services from the BPAT; or 4) designated Supplier or BPAT have not completed implementing and testing the necessary interfaces, systems, or software required in order to comply with this Business Practice by the start of the ensuing Fiscal Year (FY).

b. The Transmission Customer may reaffirm its election, or must make a new election, in writing or by email to BPAT no later than July 1 to obtain Operating Reserves Services from a third party or to supply Operating Reserves Services for the ensuing FY (October through September). BPAT assumes that any customer who does not reaffirm its election by July 1 intends to continue its existing arrangement for acquiring Operating Reserves Services through the next FY contingent on Section B.1.d. below.

c. The Transmission Customer is responsible for costs of the arrangements to put the required communications and control equipment and systems in place. Unless provisions for a Dynamic Schedule of the resource by BPAT already exist, it may take a year or more to put the required infrastructure in place. The customer's project plan requires approval by BPAT to assure that North America Electric Reliability Council (NERC) and the WECC reliability requirements can be met when the plan is implemented.

d. BPAT will continually evaluate the Transmission Customer's ability to supply Operating Reserves based on changing conditions to BPAT's system. If conditions change such that the customer is no longer able to supply Operating Reserves, BPAT will notify the Transmission Customer and BPAT will be the default provider.

e. BPAT will notify the Transmission Customer no later than September 1 of the FY in which the customer's election or reaffirmation is made, whether the proposed supply arrangements are comparable to purchasing Operating Reserves Services from BPAT, and whether the customer's selection can be implemented, with an estimate of when the ability to supply Operating Reserves could be implemented.

2. A resource used for the supply of Operating Reserves Services may be in another control area provided that the deployment signal is automated and that a distinct measurable response can be observed by BPAT.

3. The settlement for Operating Reserves Services for energy delivered on behalf of resources inside the BPAT Control Area is described below.

   a. The generator having the contingency is responsible for the costs associated with the energy delivered from Operating Reserves Services, consistent with the applicable ACS Rate Schedule.

   b. BPAT will determine the amount of energy delivered when Operating Reserves Services is called upon by:

      (1) Using the MWh meter readings from the resource declaring the contingency as given to BPAT at the end of the hour, or by direct telemetry, and subtracting that amount from the scheduled amount of energy delivery (Generation Estimate used for Generation Imbalance Service) for the hour, or

      (2) If the generation has a variable schedule, BPAT will determine the MWh contingency energy by continuously integrating the telemetered actual generation minus the variable schedule. This is called Station Control Error (SCE), or

      (3) If the MWh meter reading is not available, BPAT will calculate the energy delivered using the generation capacity lost each hour multiplied by the number of minutes remaining in the hour divided by 60.

      (4) If the resource declaring the contingency takes station service from the BPAT system during the Scheduling Hour, this energy will be added to the energy delivered.

   c. The Operating Reserves energy delivery is the difference between the Generation Estimate for the hour and the energy produced by the resource that had the contingency. If the amount of energy supply produced is equal to or greater than the Generation Estimate for the hour, no settlement of Operating Reserves energy is required. If the energy supplied by the Supplier's resources in response to BPAT's request is greater than the amount needed for the contingency, the resource declaring the contingency will be charged for this energy.

   d. Settlement covers reserve energy delivery for the remainder of the current hour; and including the next hour if the event occurs after 30 minutes into the current hour.

   e. BPAT will determine how much energy each Supplier delivered and the settlement obligation of the generator experiencing the contingency event.

   f. The settlement will be a bill to the generator receiving reserve energy and a credit to each Supplier of reserve energy. Monetary settlement for the energy delivered will be based on the energy index price. One or more indices will be posted on the OASIS specifying the season or month each index will be used.

g. The Energy Return Option is suspended for the following reasons:

(1) Applying the Operating Reserve Requirement to small schedules will result in numerous return obligations of less than 1 MW. Current practice does not allow scheduling energy of less than 1 MW.

(2) The methodology for determining the return obligation and notifying the generator of return hours and amounts is not available.

4. The Operating Reserves settlement for energy delivered when NWPP RSP are called upon is described below.

a. BPAT follows the NWPP RSP for energy settlement of exchanges outside of BPAT's Control Area. This can be found at the following web address: http://www.nwpp.org.html. Once at the NWPP web site, select "Procedures" then select "Contingency Reserve Sharing Procedures".

b. The most recent NWPP RSP settles all transactions for reserve deliveries financially. BPAT will use the market index described in the NWPP Procedures.

C. Eligibility Criteria for Suppliers of Operating Reserves Services

1. The amount of capacity that the Supplier must supply for Operating Reserves Services is the Spinning Reserve requirement and Supplemental Reserve requirement as defined in the applicable ACS Rate Schedule.

2. The supply of Operating Reserves Services requires both BPAT's Dittmer Control Center (DCC) and Munro Control Center (MCC) to be able to communicate with the Supplier's Energy Management System (EMS) for deployment of reserves. Should the DCC Automated Generation Controls (AGC) be down for a period of time, self-supply and third-party supply of Operating Reserve Requirements will be suspended for that period of time that the MCC has the capability to handle self-supply or third-party supply of Operating Reserve Requirements. During such period, the Bonneville Power Administration's Power Business Line (BPAP) will supply 100 percent of BPAT's Control Area Operating Reserve Obligation.

3. The Supplier's EMS must be staffed 24 hours a day-7 days a week to assure dispatch contact is available continuously.

4. Installation costs incurred by BPAT for telemetry and monitoring will be the responsibility of the Supplier. Costs will include labor, software for AGC, communication, as well as upgrade of both the customer and BPAT facilities. Ongoing maintenance costs of the Supplier's equipment will be the responsibility of the Supplier.

5. To supply Operating Reserves Services the Supplier must have deliveries from resources in the BPAT Control Area equal to or exceeding 150 annual aMW so that BPAT is able to measure and verify the Supplier's response. This requirement assures that reserve deployment, which is based on the allocation

ratio of BPAT's Control Area requirements, results in whole megawatt dispatch orders being sent to Suppliers when reserve energy is called upon. It is common for reserve energy requirements to be a fraction of the total reserve requirement. For instance, a 10% reserve energy requirement is deployed when a contingency of 10% of the total reserve requirement occurs.

a. When submitting a request to supply Operating Reserves Services the Supplier must provide with its request a demonstration that it will have 150 aMW of deliveries. The demonstration may be based on long-term contracts, reasonably expected short-term use, or a combination of these.

b. To continue to supply Operating Reserves Services the Supplier must have 150 aMW of deliveries during the FY. BPAT will check the Supplier's deliveries periodically. If the Supplier's use is not at least 150 aMW for the period October 1 to June 30 it may not be allowed to supply for the next FY.

6. The Supplier must comply with applicable WECC or NERC (or successor organizations) policies except where the WECC policies are in conflict with local regulatory requirements. The applicable WECC or NERC (or successor organizations) policies include but are not limited to the following:

   a. NERC Planning Standards and Operating Policies

   b. WECC Progress Report Policies and Procedures

   c. WECC Reliability Criteria for Transmission System Planning

   d. WECC Voltage Stability Criteria

   e. WECC Minimum Operating Reliability Criteria

   f. WECC Policy Statement on Power System Stabilizers

   g. WECC Procedures for Regional Planning Project Review and Rating Transmission Facilities

   h. WECC Testing Guidelines for Synchronous Unit Dynamic Testing and Model Validation. Test results must be filed with WECC.

7. BPAT may require the Supplier to provide copies of its filings with WECC.

8. The Supplier will be required to have an executed operating agreement with BPAT in place prior to the ensuing FY. The Supplier who is providing reserves for a third party Transmission Customer will be required to have a written agreement between BPAT, the third party Transmission Customer, and itself.

9. Six failures (strikes) to meet performance standards described in Section 9.a. below during a FY will be grounds for suspension of the Supplier's ability to supply Operating Reserves Services for the remainder of the FY. The following shall be considered strikes:

   a. Failure by the Supplier to provide BPAT the amount of capacity or energy as determined by BPAT to meet its Operating Reserve Requirement for any hour. Some examples include:

(1) If the Supplier does not provide its capacity requirement to BPAT for one hour in a given day, it will have one strike.

(2) If the Supplier does not provide its capacity requirement to BPAT for three different hours in a given day, it will have three strikes.

(3) If the Supplier does not deliver and /or sustain the capacity requirement to BPAT when a contingency response or test signal is requested, it will have one strike.

b. Notification Regarding Strikes and Suspension of a Supplier

Failure to comply with the performance standards will result in a strike against the Supplier. BPAT will notify the Supplier of a strike by letter, email, or phone call. The Supplier will be notified in writing of the effective date of the suspension of its right to supply Operating Reserves Services.

10. Supply of Operating Reserves is based on the "one Control Area" concept, which means that each Supplier of Operating Reserves carries its proportionate share of the Operating Reserve Requirement. The Operating Reserve Requirement that a Supplier must provide is based upon the sum of the Supplier's hourly transmission schedules from generators in BPAT's Control Area, plus the hourly requirements service from BPAP's generators, plus the online internal generation (behind the customer's meter) in the BPAT Control Area. The Supplier's Operating Reserve Requirement divided by the BPAT Control Area's Operating Reserve Requirement, as defined by WECC and NERC, is the Supplier's Allocation Ratio. Present BPAT Operating Reserve Requirement are 7% of non-hydro generation output on-line plus 5% of hydro generation output on line (deliveries from BPAP resources require a 5.2% Operating Reserve Requirement based upon an average of BPAP's resource mix.) This Allocation Ratio is multiplied by the BPAT Control Area's energy deployment for the contingency event to establish the Supplier's reserve energy delivery for each hour.

11. Resources in the BPAT Control Area that are delivering firm power but do not have all the necessary Operating Reserve Requirement provided by BPAT's Ancillary Services will supply Operating Reserves as Control Area Services.

12. If the Supplier providing the Operating Reserves Services is: 1) a member of the NWPP and 2) a participant in the RSG, then settlement procedures for reserve deliveries required under the RSG agreement will follow that agreement. If the Supplier is not a member of the RSG, then BPAT will administer the Supplier's contribution and its obligation to Reserve Sharing as billing credits or debits.

13. Supply of Operating Reserves Services outside of BPAT's one Control Area concept as described in Section C.10 above requires the Supplier to request an exemption from BPAT. To independently supply Operating Reserves Services for only the Supplier's contingency events, the Supplier must provide reserves for the full amount (100%) of its prospective resource loss and meet the requirements listed below. In all cases, no residual obligation shall be placed on the BPAT Control Area.

a. Submit a written request to the Transmission Account Executive expressing its desire to independently supply Operating Reserves Services;

b. Provide physical evidence, which may include metering, that demonstrates total independence from BPAT support; and;

c. Install equipment necessary for BPAT to determine if the estimated schedules for resources and deliveries to loads stayed within the net schedules submitted to BPAT.

d. BPAT will provide a written response to the customer no later than 60 days after receipt of a written request to independently supply Operating Reserves Services.

14. The following are examples of when the Supplier may request an exemption be made to supply Operating Reserves Services outside the one Control Area concept:

a. A Supplier that trips load greater than or equal to the resource loss; or

b. The load and resource are part of an integrated process where load and generation directly track each other.

c. Interruptible Exports such that the receiving system provides Operating Reserves Services for 100% of the transmission schedule. Prior to implementation fully automated systems and detailed design considerations must be approved by BPAT.

15. The Operating Reserve Requirement must be available at all times; fully delivered within 10-minutes after BPAT sends a signal for Operating Reserves; and sustained for the remainder of the Scheduling Hour unless otherwise requested by BPAT.

16. BPAT will perform unannounced capability tests to assure that capacity is fully available within 10-minutes. BPAT will work with the Supplier, when necessary, to establish acceptable timeframes when the Supplier's system cannot accept energy. These tests will net to 0 integrated MWs within the current minimum schedule granularity unless a real time disturbance occurs which will require the integrated MW to be zeroed out in the next hour. This includes a signal to the Supplier’s system. If the Supplier fails the capability test, a strike is assessed.

17. BPAT will pass on to the Supplier, and the Supplier or Transmission Customer shall be obligated to pay any penalties BPAT may incur from WECC Reliability Management System Operating Reserves if the cause of those penalties are due to the Supplier not carrying the full amount of its Operating Reserve Requirement.

18. BPAT will pass on to the Supplier, and the Supplier or Transmission Customer shall be obligated to comply with, any additional penalties it may incur from NERC Distribution Control Standards if the cause of those penalties is due to the Supplier’s failure to fully meet its Operating Reserve deployment requirement.

19. The Supplier shall be required to demonstrate that it has adequate, firm, transmission available to deliver the reserves to BPAT across posted constrained

paths. If transmission is not available, the Supplier must arrange for alternative forms of delivery to BPAT. Examples include: (1) carrying reserves on resources not affected by the posted constrained path; (2) using transmission capability from the Supplier's existing rights; or (3) acquiring transmission rights. The BPAT Constrained Paths posting can be found at the following web address: http://www.transmission.bpa.gov/oasis/bpat/outages/oasiscontent.shtm.

20. A Transmission Customer who elects to obtain Operating Reserves Services from a Supplier other than BPAT and is acquiring full or partial requirements service (Net Load Forecast) from the BPAP must submit either a transmission schedule or its Net Load Forecast to BPAT in accordance with BPAT's scheduling windows. Submission of a transmission schedule or a Net Load Forecast is the responsibility of the Transmission Customer.

21. BPAT may assess the accuracy of the Transmission Customer's transmission schedules or the Net Load Forecasts pursuant to the following:

    a. BPAT will use the Industry Accepted Statistical Process Control Standards[1], which are the combined results of time series and moving range charts, to determine when transmission schedules or the Net Load Forecast have exceptional variation. Exceptional variation occurs when the forecast error exceeds the (1) Daily Upper Range Limit; (2) Daily Upper Natural Process Limit; or (3) Daily Lower Natural Process Limit. See Attachment A for examples of (1) Daily Upper Range Limit; (2) Daily Upper Natural Process Limit; and (3) Daily Lower Natural Process Limit. It is BPAT's intent to discourage exceptional variation. A predictable process exhibits routine variation. An unpredictable process exhibits both routine variation and exceptional variation.

    b. The difference between the actual load minus the transmission schedules or the Net Load Forecast is the load forecast error, which will provide evidence of the underlying behavior. BPAT's expectation is that the transmission schedules or the Net Load Forecast error is zero on a daily basis.

    c. Failure of a Transmission Customer, or its scheduling agent, to submit accurate transmission schedules or a Net Load Forecast that results in cost shifts to BPAT shall have such costs passed on to the Transmission Customers.

    d. Notification Regarding Strikes and Suspension

        (1) Failure to meet the accuracy standards described in Section 21.a.and b. above will result in a strike. BPAT will notify the Supplier, or the Transmission Customer and its third party Supplier if applicable, of a strike by letter, email, or phone call.

[1] Wheeler, Donald, Chambers, David S., "Understanding Statistical Process Control," second edition, SPC Press and Wheeler, Donald J., "Understanding Variation - The Key To Managing Chaos," second edition, SPC Press.

(2) Six failures (strikes) may be grounds for suspension of the Supplier or the Transmission Customer's right to acquire Operating Reserves Services from a third party for the remainder of the FY. BPAT will notify the Supplier, or the Transmission Customer and its third party Supplier if applicable, in writing of the effective date of the suspension.

D. Supplier's Responsibilities for Communication of Information to BPAT Control Centers

1. Deployment of the Supplier's resources must be accomplished using automated response to electronic signals from BPAT. The resource(s) may be system rather than individual resources. System resources require independent response verification information.

2. The Supplier shall exchange real-time data with BPAT using the ICCP data link between BPAT's two control centers, DCC and MCC, and the Supplier's EMS (or resource). The Supplier shall exchange other types of data, such as schedules, generation estimates, meter readings, etc., with BPAT using the WECC Electronic Industrial Data Exchange (EIDE) protocol.

3. Real-time data exchange shall conform to WECC standards for inter-utility data exchange, including availability, bandwidth, security, and reliability. Real-time data exchange and control signals must have a periodicity of 10 seconds or less. The Supplier shall provide the following data to BPAT for its resources internal to the BPAT Control Area:

   a. Instantaneous net hydro generation. This information determines the hydro portion for establishing deployment of Operating Reserves

   b. Instantaneous non-hydro generation. This information determines the thermal portion for establishing deployment of Operating Reserves.

   c. Generation Estimates of scheduled generation for each Supplier's resource (or system) for the current hour and the next hour, plus the instantaneous Generation Estimates for the Supplier's resource (or system).

   d. The maximum, minimum, and spinning generating capability available within the NERC defined Disturbance Recovery Time Period refreshed (updated) every five minutes. Operating Reserves shall be held available at all times until a contingency occurs.

   e. The Participation Factors of each resource that the Supplier wishes to have deployed when reserves are called upon in order to distribute the response to multiple resources. The total of all Participation Factors equals 100% (1.00 per unit from definition). BPAT must know where reserve supplies are coming from. A zero Participation Factor means the resource is not available for operating reserves deployment.

   f. The actual instantaneous generation, in MW, of each resource that is providing reserves.

g. Status of the Supplier's EMS. (An EMS that is out of service usually means the supply cannot be provided so TBL will automatically default to BPAP for additional Operating Reserves.)

4. A Supplier providing system responses shall provide the following data to BPAT:

   a. Dynamic Schedule of its response to the BPAT operating reserve deployment;

   b. Net interchange deviation;

   c. System error signal, (for control areas, this is the Area Control Error (ACE)); and

   d. The status of the Supplier's EMS.

E. BPAT Responsibilities for Communication of Information to the Supplier of Operating Reserves

1. BPAT will determine the Supplier's Operating Reserve Requirement for the current hour and an estimate for the next hour. The Operating Reserve Requirement will be used to calculate the Supplier's Allocation Ratio and will change as transmission schedules are changed or generation amounts vary (may vary within the hour). In the event of a contingency, the megawatt amount of reserve energy the Supplier must deliver will be sent from BPAT over a data link to the Supplier's resources or through the Supplier's control center. If the resource is outside of the BPAT Control Area the megawatt amount of reserve energy that the Supplier must deliver will be sent from BPAT to the Supplier's control center.

2. BPAT will send a signal to the Supplier representing the Plant Request or Setpoint up for the remainder of the Scheduling Hour (or 65 minutes for a NWPP Reserve Sharing event) to deliver Operating Reserves Services by the Supplier as follows:

   a. Plant Request or Setpoint = Basepoint + (BPAT deployment requirement (or MW loss)) * (BPAT normalized Participation Factor)* (Operating Reserves Allocation Ratio); or

   b. A Dynamic Schedule for the Supplier's system resources. Dynamic Schedule = (BPAT deployment requirement (MW loss))*(Operating Reserves Allocation Ratio).

   c. A verification status flag confirming that the new Setpoint represents a valid operating reserve delivery request.

   The Setpoint is limited to the Basepoint plus the Supplier's requirement.

3. During non-contingency conditions, BPAT will send to the Supplier a Setpoint request signal with the BPAT deployment requirement equal to zero except when testing.

4. Supplier Recovery Error = Actual Generation, in MW, minus Setpoint, in MW, measured over the Disturbance Recovery Time Period. The Supplier Recovery Error must reach zero or positive MW prior to 10-minutes after receiving the Plant Request or Dynamic Schedule and continuing through the end of the Contingency Reserve Restoration Period. The Supplier Recovery Error, in MW, will be recorded accurate to 1/10 MW. If the performance does not reach 100% Plant Compliance factor, then it will be counted as strike. See Section C.9 above.

   For $0<t<10$ min.

   Plant Compliance Factor (i) = [MW loss - max {0, or precontingency Supplier Recovery Error (i) - maximum Supplier Recovery Error (i)}/ MW loss] * 100%.

   Where (i) represents each resource beginning with the first resource continuing through n resources.

   Where (n) is the total number of resources the Supplier is using.

5. For circumstances where system resources are used, the ACE and Net Interchange Deviation will be used as the Supplier Recovery Error.

6. BPAT will notify each Supplier of the MWh of reserve energy, and any additional information that both parties agree to, it delivered for each hour of contingency either through the EIDE or the Customer Web Interface. This notification will occur shortly after the conclusion of the hour of the contingency. BPAT will coordinate the energy settlement for reserve energy deliveries among appropriate Suppliers.

F. Definition of Terms used in this Business Practice

1. **Allocation Ratio**: The percentage of BPAT Control Area Operating Reserve Requirement obligation assigned or allocated to a party that is providing resources to meet its Operating Reserve Requirement, rather than purchasing its Operating Reserve Requirement from BPAT.

2. **Basepoint:** A generator estimate which is normally held constant during the hour except during the ramp period from ten minutes before the hour to ten minutes after the hour, when plant-operating schedules for the next hour are changed to match the plant transmission schedules. Plants used for provision of Ancillary or Control Area Services will receive more frequent adjustment to their Basepoint, in response to BPAT control signals.

3. **Generation Estimate**: The scheduled hourly energy generation from a plant. .

4. **Operating Reserves** (also called Contingency Reserves): The combination of Operating Reserve-Spinning Reserve Service and Operating Reserve-Supplemental Reserve Service. Fifty percent of Operating Reserves Services must be Spinning Reserves Services.

5. **Energy Management System (EMS)**: A control system (often computerized) designed to regulate the balance of generation and load in a control area by

controlling the operation of generation, transmission, loads consistent with scheduled system frequency and voltages.

6. **Instantaneous Generation**: A generator's power output level at the current instant of time. Output values are typically read every four seconds and telemetered to an EMS.

7. **Operating Status**: An electronic indicator or flag, designating whether the reserves provider's facility is in service, responsive to automated requests for reserve delivery.

8. **Participation Factor**: The per unit (= % /100) amount of the resource provider's delivery designated by plant. For example, when the control area calls upon a reserves provider to deliver 10MW, the provider may designate participation factors of 0.3; 0.2; and 0.5 (sum=1) for its units A, B, and C respectively. The response to the control area request would then be, by unit: A=3MW; B=2MW; C=5MW.

9. **Reserve Deployment**: The sending of generation request signals to resources providing contingency Operating Reserves.

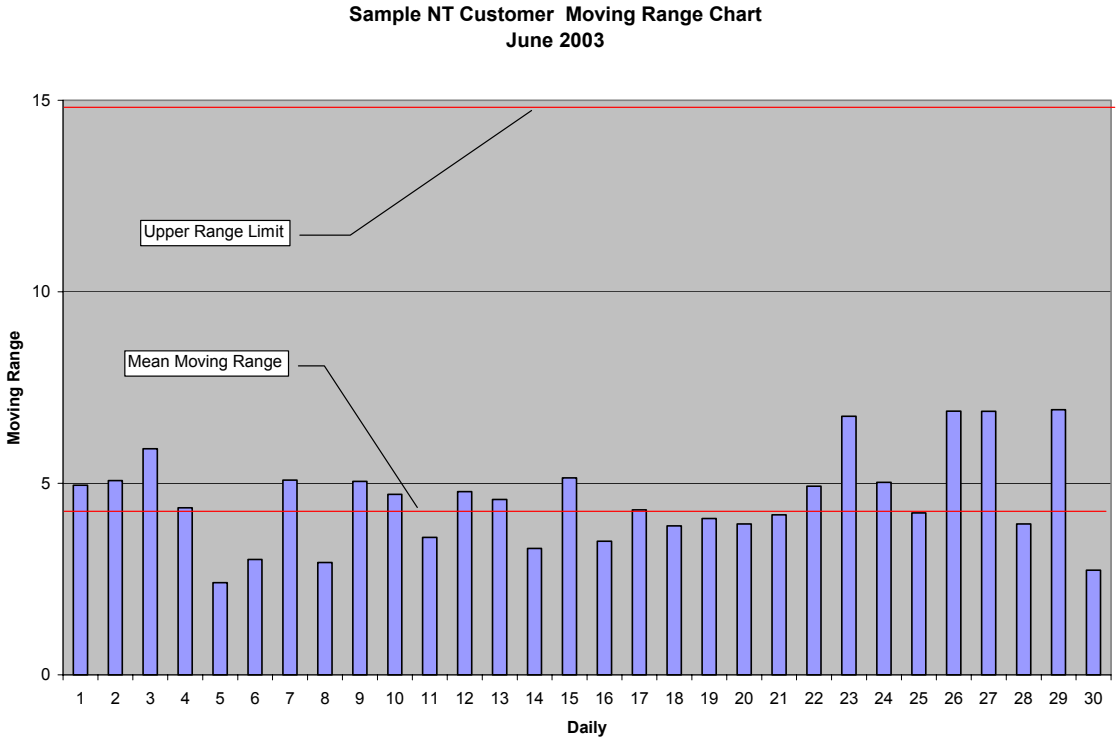
10. **Setpoint**: A request to a generating resource for operation at a particular power level; or a control signal sent to a generating resource requesting a setting of the Basepoint at a particular megawatt level.

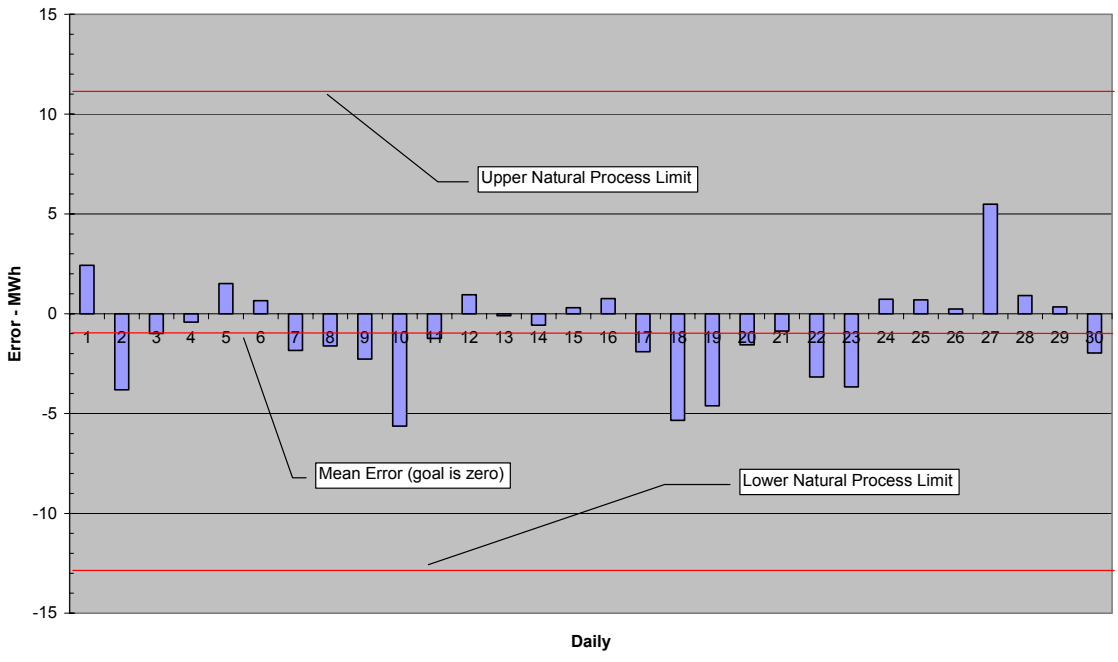
11. **Scheduling Hour**: Settlement covers reserve energy delivery for the remainder of the current hour and including the next hour if the event occurs after 30 minutes into the current hour.

12. **Supplier:** Either the third party supplier or the self-provider.

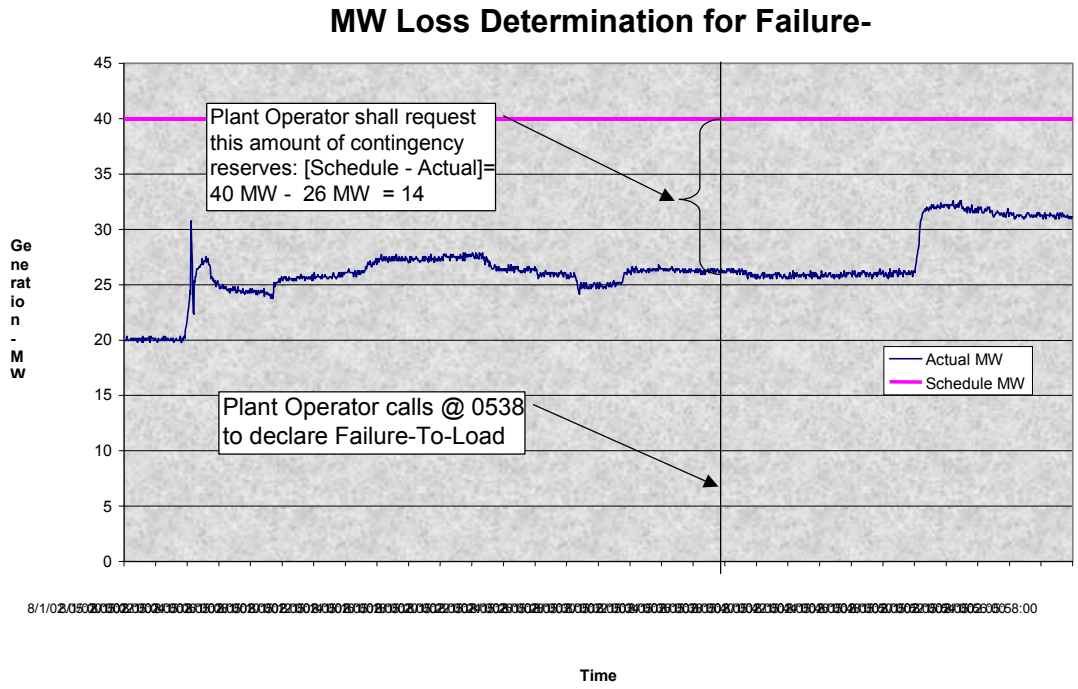
Appendix A – Process Behavior Chart

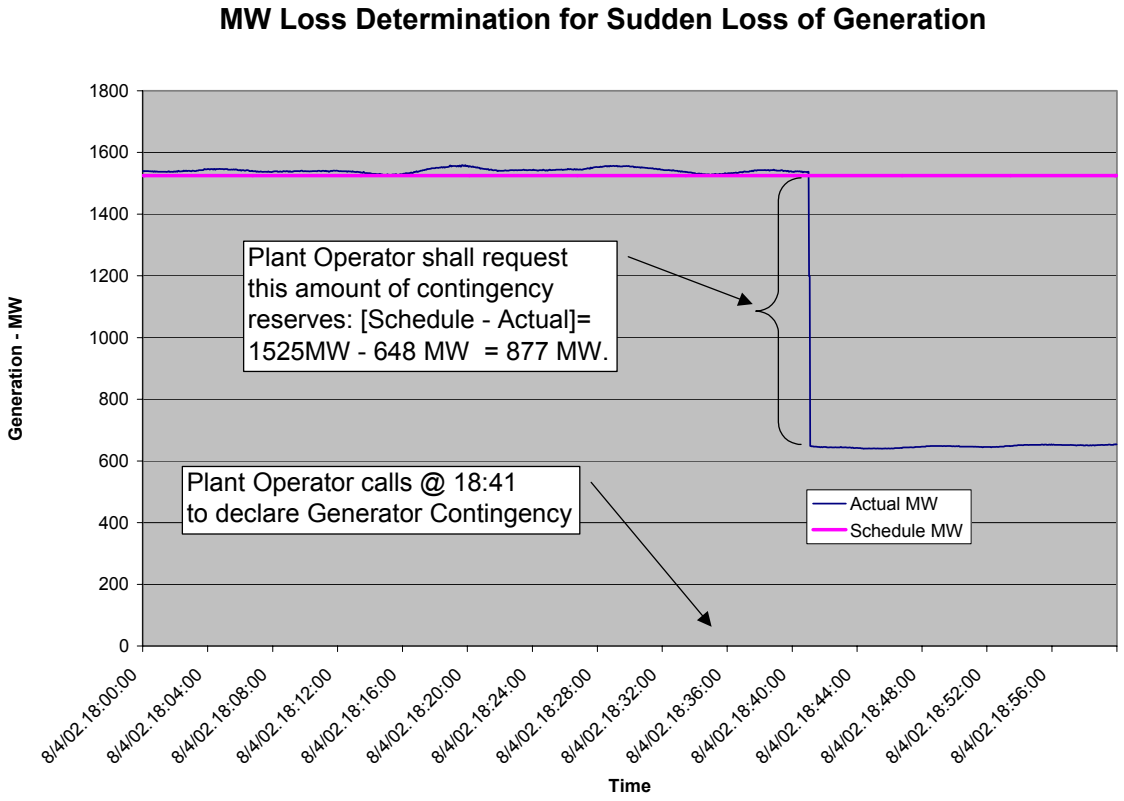
Note: A strike will be assessed if the Transmission Customer's actual load minus scheduled load or net load forecast error exceeds the upper or lower limits.





Appendix B – Determination of MW Loss





Revision History

Rev #	Date	Authors	Summary
1	05/14/03	Dave Gilman, Mary Ann Dalton	This revision is to add clarification to (1) section C.9 regarding the interpretation of the performance standards applicable to self-suppliers of Operating Reserves (2) Section C.14.c. regarding self-supplying outside the one control area concept, (3) Section B.4 regarding settlement under the Northwest Power Pool Reserve Sharing Procedures. Changes were also made in Section C.5. increasing the minimum criteria on deliveries from resources in the BPAT Control Area from 100 annual aMW to 150 annual aMW. Minor changes were also made such as incorporating redundant paragraphs into one paragraph.
	08/17/01		Original Document